# *2011 Virginia Outdoors Demand Survey*


## Report of Results

**Prepared by:**

**James M. Ellis, Ph.D.**
*Director of Research*

**Deborah Rexrode, M.A.**
*Project Manager*

**Peter Furia, Ph.D.**
*Project Manager*

**Jaesook Lee, M.A.**
*Research Analyst*

**David Shreve, Ph.D**.
*Research Analyst*

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Kathy Coker supervised the mailings for the project, entered the data and cleaned the open-end comments.

The Center for Survey Research (CSR), a unit of the Weldon Cooper Center for Public Service at the University of Virginia, is responsible for any errors in this report. Inquiries may be directed to: Center for Survey Research, University of Virginia, P.O. Box 400767, Charlottesville, VA 22904-4767. The Center can be reached by telephone at 1-434-243-5222, by e-mail to surveys@virginia.edu, or through the World Wide Web at http://surveys.virginia.edu.

# Executive Summary

## Purpose of the Survey

Every five years in preparation for the development of the Virginia Outdoors Plan, the Department of Conservation and Recreation (DCR) conducts an outdoor recreation survey. The main purposes of the 2011 Virginia Outdoors Demand Survey (VODS) are to assess Virginians' attitudes about outdoor recreation resources, estimate participation in and demand for a wide variety of recreational activities, and provide a channel of citizen input into the 2012 Virginia Outdoors Plan. The 2011 VODS was designed to obtain information on approximately 50 outdoor recreation activities. The survey also included specific questions to assist with future planning for local and regional parks, Virginia State Parks and Natural Area Preserves.

The VODS establishes a base of statewide data from which to estimate outdoor recreation use. The survey helps recreation providers strategically plan future facilities based on the needs estimated from the survey responses. Larger, more populous localities often use this information as a basis for preparing a more detailed local outdoor recreation survey. Smaller, less populous localities use the VODS data as direct input for comprehensive master planning and for local park planning projects.

This information will assist DCR and local providers in determining where additional parks, recreational areas, and facilities are needed. It will also help in identifying ways in which DCR can improve our state parks system and how best to protect Virginia's natural and open space resources.

In addition to the survey and this report, the project included four other components. These components were delivered separately from this report. They include calculations of the need for recreational facilities and documentation of this process for internal use and citizen use, an analysis and report regarding alternative methods of estimating demand for recreational facilities, a PowerPoint presentation, and two conference presentations.

## Survey Methods

Out of a probability sample of 13,880 Virginians contacted to participate in the survey, 3,166 responded.

After accounting for ineligible households, this equates to a response rate of approximately 22.7 percent and a margin of error due to sampling of approximately +/- 2.9 percentage points[1].

Note that random sampling error is not the only potential source of error in surveys. Non-response error, for example, is also of concern insofar as those Virginians who responded to the survey may differ in their attitudes toward outdoor recreation activities than those who did not respond.

The sample was stratified by planning districts to ensure representation from areas with smaller populations. In some cases, planning districts were combined into one area for sampling purposes.

The data were weighted to adjust for the disproportionate sampling by geography, and to bring the demographics more into line with statewide proportions.

The survey protocol included an advance letter, a survey packet about one week later, a thank you/reminder postcard one week after that, and a second packet about two to three weeks after that sent to all non-respondents.

At DCR's request, CSR experimented with mail and web-based modes of data collection in this study. Because the differences by mode did not appear to be extensive or extreme, the combined data were used without adjustments for response mode. Based on this experiment, for future iterations of the survey CSR recommends an initial data collection phase by Internet followed by a full postal survey protocol. This approach should maximize participation and minimize costs.

## Overview

The 2011 Virginia Outdoors Demand Survey (VODS) finds high regard for the importance of outdoor recreation opportunities and a strong commitment to the protection of natural areas among the general public. The survey finds strong

[1] The sampling error calculation takes into account the impacts of weighting the data and using a disproportionate stratified design. See Appendix G for details.

support for public funding and public management of lands in pursuit of the protection of natural areas and the availability of public access to those resources.

Participation rates in a wide variety of recreational activities were higher in 2011 than in 2006, the last year the survey was conducted. The four most frequently mentioned activities in which respondents had participated in the last 12 months were walking for pleasure; visiting historic sites or areas; visiting parks (local, state or national); and visiting natural areas, preserves or refuges[2].

Respondents saw the need for more trails for hiking and walking; more public access to state waters for fishing, swimming, and beach use; and more access to natural areas.

## Survey Results

### *Access to Outdoor Recreation*

An overwhelming majority of respondents – more than nine in ten – consider access to outdoor recreation to be "very important" or "important." Respondents aged 18-24 were especially likely to consider such access to be "very important."

These figures are generally comparable to those from the 2006 Virginia Outdoors Survey, although the percentage of respondents who consider such access "very important" increased slightly in 2011, from 50 to 56 percent. The majority of respondents, and especially middle-aged respondents, participate in outdoor recreation "mostly on weekends."

### *Most Needed Recreation Opportunities*

The survey asked respondents to select up to three recreation opportunities that are "most needed in Virginia" from a list of possibilities The most frequently selected choices were "trails for hiking and walking" (68%), "public access to state waters for fishing, swimming, and beach use" (60%), and "access to natural areas" (55%). Younger respondents expressed greater interest in a variety of activities compared to those who were older.

About six in ten respondents expressed either an equal preference or no preference between developed parks and natural areas. Among those expressing a preference however, the majority favored natural areas. This tendency was particularly pronounced among younger respondents.

### *Participation in Recreational Activities*

Respondents were asked if they had participated in nearly 50 different recreational activities within the past 12 months. The four most frequently mentioned activities were "walking for pleasure" (82%, up from 72% in 2006); "visiting historic sites" (64%, up from 56% in 2006);"visiting parks (local, state, national)" (51% in 2011 – a fairly comparable item in 2006, "visiting state parks," garnered 43%); and visiting natural areas, preserves or refuges (50%, up from 44% in 2006). The 2011 survey did not ask about "driving for pleasure," which was mentioned by 55% in 2006.

Seven of the eight top activities asked about in both 2006 and 2011 showed increases in participation in 2011. Swimming was 44% in 2006 when it was asked in one overall category, while swimming in a pool was 43% in 2011 and swimming at a beach was 38% in 2011. However, 55% of respondents in 2011 combined to mention some form of swimming, whether the mention was only swimming at a beach (11.8%), only swimming in a pool (16.6%), or both (26.4%).

Just over half reported visiting a natural area, preserve or refuge, again up slightly from 2006 (from 44% to 50%).

Just under one quarter of respondents in 2011 (24%) reported camping in the last 12 months, an increase from 18 percent in 2006.

Listed in descending order, the three "organized sports" most commonly participated in were golf (16%), basketball (13%) and soccer (12%).

The three water-related activities most frequently participated in were swimming in a pool (43%), sunbathing/relaxing on a beach (41%) and swimming at a beach (38%).

The three "wheeled activities" most frequently participated in were off road/multi-use biking (13%), single track bicycling (10%) and driving 4-wheel off road (6%).

The three winter activities most frequently participated in were downhill skiing /

[2] The 2011 survey did not ask about "driving for pleasure," which was mentioned by 55% in 2006, making it the third-most popular activity.

snowboarding (11%), snow sledding/tubing (9%) and ice skating (4%).

## *Information about Recreational Activities*

Listed in descending order, the top three sources of outdoor recreation information were "word of mouth," "Internet" and "magazine, newspaper." The Internet was mentioned more frequently by respondents aged 18 to 24 compared to older respondents, and by respondents with household incomes at or above $100,000 compared to those with lower incomes. The Internet was mentioned less frequently in the Chesapeake region (42%) than in the Piedmont (47%), Mountain (53%) and Urban Corridor (65%) regions of the state.

Younger respondents were more likely to use some, but not all technologies in conjunction with outdoor recreation. Technology use was also more frequent in the Urban Corridor region and least frequent in the Chesapeake region.

## *Amenities, Camping and State Parks*

Listed in descending order, the most popular camping amenities were "flush toilets," "showers" and "electric/water hookups." Young respondents were generally less concerned with these amenities than were older respondents.

About six in ten respondents supported developing public campgrounds in Virginia's state parks, with only about one in ten respondents not supporting such development. Attitudes in regard to this issue were widely shared among demographic groups.

The three top-rated reasons for state parks were "to explore and enjoy nature," "conserving natural resources" and "walking, running and other activities." Respondents from the Urban Corridor gave higher ratings to walking and running and somewhat lower ratings to other reasons.

The three most-cited reasons for lack of use of state parks were "lack of time," "lack of information" and "too far away." Young respondents were especially likely to cite "lack of information."

Two to three bedroom cabins were the preferred lodging style; campsites with water/electric were the preferred campsite type. These preferences were widely shared among demographic groups, except for the fact that older respondents were less likely to prefer tent-only campsites.

Approximately half of respondents feel secure swimming without lifeguards, with younger respondents more likely to feel secure.

Listed in descending order, the amenities considered most important by respondents to have in state parks were hiking trails, camping facilities and visitor centers. Younger respondents were especially likely to consider hiking trails, multi-use trails and school programs important; respondents from the Mountain region were especially likely to view camping and fishing amenities as important.

The three amenities for which charging fees was considered most acceptable were "wedding and meeting facilities," "cabins" and "special events." Attitudes about fees were widely shared across demographic groups.

## *Natural Areas and Their Protection*

Close to two-thirds of respondents rate the protection of natural areas as "very important," with only 1.3 percent of respondents rating such protection as "not important."

Just over half of respondents were unsure as to whether natural areas are adequately protected at present, with the remainder about evenly split between those answering "yes" and "no."

More than two-thirds of respondents consider the best method of protecting natural areas to be "outright purchase and then management of a natural area or park for public use." The vast majority of the remaining respondents favored "purchase of easements that reduce development rights with some public use." These attitudes were widely shared among demographic groups.

Fewer than one-third of respondents had heard of the Natural Area Preserve System, and only about one in four characterized themselves as even "somewhat familiar" with it. Respondents from the Urban Corridor were the least likely to be familiar with the preserve system.

Even so, only about one in four respondents felt completely unable to offer an opinion on the importance of the preserve system. Among the remainder willing to express such an opinion, the vast majority suggested that it was at least "somewhat important."

## *Race, Ethnicity and Recreational Activities*

Generalizations about racial and ethnic groups are sometimes risky because racial and ethnic subgroups are not monolithic populations. There is much variety within almost any demographic subgroup. But some trends do seem to be useful to consider in a broad, general way.

Research about Hispanic Americans demonstrates many similarities to other Americans in terms of placing high value on recreational opportunities and participating in many of the same popular activities. But there are some cultural differences in how Hispanics participate in and relate to outdoors activities because Hispanic culture emphasizes extended family, community solidarity and individual expression within those structures. In addition, Hispanics in some areas of the country may not participate in nature-focused activities at the same rates as do others[3].

African-Americans tend to place slightly less value on outdoors recreational opportunities, and tend to participate in a more limited range of activities that is not strongly focused on hiking, camping or other ways of connecting to nature[4].

In general, the results from the 2011 VODS show that Hispanics, in comparison to non-Hispanics, were especially likely to consider access to outdoor recreational opportunities as "very important." They were somewhat more willing to spend public funds to protect natural areas than were non-Hispanics. They were more likely to consider the Virginia Natural Area Preserve System "very important." They were more likely to obtain information about recreational opportunities from the Internet and to use social media, smart phones and GPS in conjunction with outdoor recreation. They were more likely to feel secure swimming without lifeguards.

However, they were less likely to have heard of the Natural Area Preserve System and they rated themselves as less familiar with the preserve system. They were more likely to say that "lack of information" was a major reason they do not use state parks more

Hispanic respondents were more likely to say that swimming amenities were most important to have in state parks. When asked what they thought were the most needed recreation opportunities in Virginia, Hispanic respondents indicated a comparatively greater interest in bicycle trails and outdoor playing courts than did non-Hispanic respondents. Hispanic respondents gave lower importance ratings for many drive-in campground amenities than did non-Hispanic respondents, although they reported participating in camping at about the same rate that non-Hispanics do.

In the 2011 VODS, African-American respondents were somewhat less likely to say that access to outdoor recreation opportunities is "very important," and they were relatively less supportive of spending public funds to protect natural areas and open spaces, although a majority still expressed this support. Like Hispanics, African-Americans were somewhat more likely compared to whites to say they had not heard of the Virginia Natural Area Preserve System. Compared to other racial and ethnic groups, African-Americans were more likely to have heard about recreation opportunities through advertisements, and were the least likely to hear about them through the Internet.

African-Americans were not frequent campers, but African-American respondents were more likely to express support for just about any campground amenity compared to other racial and ethnic groups. African-American support for almost all amenities in state parks except hiking trails exceeded support expressed by whites – particularly for school programs.

The appendices to this report provide detailed crosstabulation tables allowing comparisons of response by race and ethnicity.

## *Summary*

The 2011 VODS provides a useful basis to support strategic planning for Virginia's outdoors recreational needs. The results of the survey are similar to those obtained in 2006, although self-reported participation in outdoors activities is generally a bit higher in 2011.

[3] See, for example, http://www.outdoorfoundation.org/pdf/ResearchHispanic.pdf and http://www.fs.fed.us/psw/publications/documents/psw_sp012/psw_sp012.pdf.

[4] See http://www.outdoorafro.com/ for an example of a personal response to this tendency.

Public support is very strong for public access to open spaces and outdoors recreational opportunities, as well as for public expenditures to make those opportunities available. Public support is also strong for the Virginia Natural Preserve System despite significant lack of knowledge about the system.

Similarly to 2006, the four activities most frequently mentioned by respondents as something they or a household member did in the last 12 months were "walking for pleasure" (82.2 percent of households participating), "visiting historic sites" (63.5%), "visiting parks (50.6%) and "visiting natural areas" (50.3%).

Younger age groups, particularly those aged 18 to 24, tended to be more active and to have fewer desires for amenities in state parks. Participation in some activities was related to the region of the state in which the respondent lived. For example, hunting was more popular in the Mountain and Piedmont regions, and camping was more popular in the Mountain region. And naturally, salt water fishing and power boating were more popular in the Chesapeake region.

The methods experiment conducted in the 2011 VODS indicates that a hybrid method should be considered in 2016. This hybrid would use a web-based invitation, possibly with one or two follow-up contacts, to obtain completed surveys by Internet. Then a full postal survey protocol would be used to fill out the data collection and maximize response rates. This approach might save $10,000 to $15,000 compared to a postal-only method.

The information from the 2011 VODS is only a portion of the information used by DCR staff in their extensive review and update of the 2012 Virginia Outdoors Plan. We are pleased to contribute to this important effort on behalf of Virginia's citizens.

# I. Introduction

## Purpose of the Survey

Every five years in preparation for the development of the Virginia Outdoors Plan, the Department of Conservation and Recreation (DCR) conducts an outdoor recreation survey. The main purposes of the 2011 Virginia Outdoors Demand Survey (VODS) are to assess Virginians' attitudes about outdoor recreation resources, estimate participation in and demand for a wide variety of recreational activities, and provide a channel of citizen input into the 2012 Virginia Outdoors Plan. The 2011 VODS was designed to obtain information on approximately 50 outdoor recreation activities. The survey also included specific questions to assist with future planning for local and regional parks, Virginia State Parks and Natural Area Preserves.

The VODS establishes a base of statewide data from which to estimate outdoor recreation use. The survey helps recreation providers strategically plan future facilities based on the needs estimated from the survey responses. Larger, more populous localities often use this information as a basis for preparing a more detailed local outdoor recreation survey. Smaller, less populous localities use the VODS data as direct input for comprehensive master planning and for local park planning projects.

This information will assist DCR and local providers in determining where additional parks, recreational areas, and facilities are needed. It will also help in identifying ways in which DCR can improve our state parks system and how best to protect Virginia's natural and open space resources.

The project included four additional components, all delivered separately from the survey and this report:

1) Calculating the need for recreational facilities and resources by comparing demand statistics from the survey with a comprehensive inventory of existing facilities and resources submitted to DCR by localities around the state. This component of the project also included enhanced documentation of this process for internal use and citizen use.
2) An analysis and report regarding alternative methods of estimating demand for recreational facilities and resources, created by the Center for Economic and Policy Studies (CEPS) at UVa's Weldon Cooper Center.
3) A PowerPoint presentation describing the survey results to be used by DCR staff at public meetings around the state.
4) Up to two presentations by CSR and CEPS staff, along with DCR staff, at professional conferences in Virginia in 2012.

## About the Report

The report body is divided into two major sections: Survey Methods and Survey Results.

The Survey Methods section presents a description of the survey planning and questionnaire development process, as well as data on response rates and margin of error.

The Survey Results section presents a summary of the survey findings and is sub-divided into the following four main areas:

- Overview of Respondents
- Access to Outdoor Recreation
- Virginia's State Parks
- Protection of Virginia's Natural Areas and Open Space Resources

The report body is supplemented by the following appendices:

- Appendix A: Questionnaire
- Appendix B: Activity Grid Tables
- Appendix C Weighted Frequencies
- Appendix D: Unweighted Frequencies
- Appendix E: Weighted Crosstabulation Tables (Age, Hispanic Origin and Region)
- Appendix F: Weighted Crosstabulation Tables (Homeownership, Gender, Race and Income)
- Appendix G: Methods
- Appendix H: Open-End Responses

# II. Survey Methods

The survey methods for the 2011 Virginia Department of Conservation Outdoors Survey were based on the principles of the "Tailored Design Method" (TDM) of web survey administration.[5] TDM is a set of related techniques that optimizes cooperation, response rates, and accuracy in web surveys without compromising confidentiality.

## *Questionnaire*

The Center for Survey Research (CSR) and the Virginia Department of Conservation (DCR) used the 2006 Virginia Outdoors Survey as a starting point for developing the 2011 Virginia Outdoors Demand Survey (VODS). The project team identified questions to drop or modify due to lack of utility, lack of response, or other patterns in the 2006 results. This review also incorporated feedback from DCR regarding new topics and concepts that would be useful in the 2011 VODS.

In April 2011, CSR conducted a focus group with a randomly selected group of citizens from the greater Richmond area to test a draft of the survey instrument. With feedback from the focus group and DCR staff, CSR made edits to the survey and proceeded to conduct a full survey protocol pretest with a sample of 50 Virginia residents. The data from the pretest were not used in the final survey report, but the results showed that the instrument was effective. After reviewing the completed surveys from the pretest, CSR and DCR finalized an extensive 16-page survey instrument. The questionnaire contains four main sections:

1) Participation in and Access to Outdoor Recreation (includes detailed tables to obtain information about participation in outdoor activities)
2) Virginia's State Parks
3) Protection of Virginia's Natural Areas and Open Space Resources
4) General Information (includes demographic information)

[5] See Don A. Dillman, *Mail and Internet Surveys: The Tailored Design Method* (New York: John Wiley and Sons, 3rd ed., 2009).

## *Sample*

The sample for 2011 VODS was a randomly selected group of 13,880 residential mailing addresses in the state of Virginia. The sample was disproportionately stratified by seventeen Planning Districts or PD equivalents (in two cases, two PDs were combined into one unit for sampling purposes and in one case, three PDs were combined). These sampling areas were grouped into four large regions of the state for analysis. See Figure II-1 for a map of the regions used in this study.

The households are part of an address-based sample (ABS) drawn from a commercial database that is based on the delivery sequence file maintained by the US Postal Service. Nearly 90 percent of the sample contained both names and addresses. All contacts with this portion of the sample addressed the "[Name] Household or Current Resident". The remaining 10 percent of the sample contained only addresses, and all contacts with those households were addressed as "Current Resident." Appendix G contains details about the methods and sampling procedures.

## *Weighting*

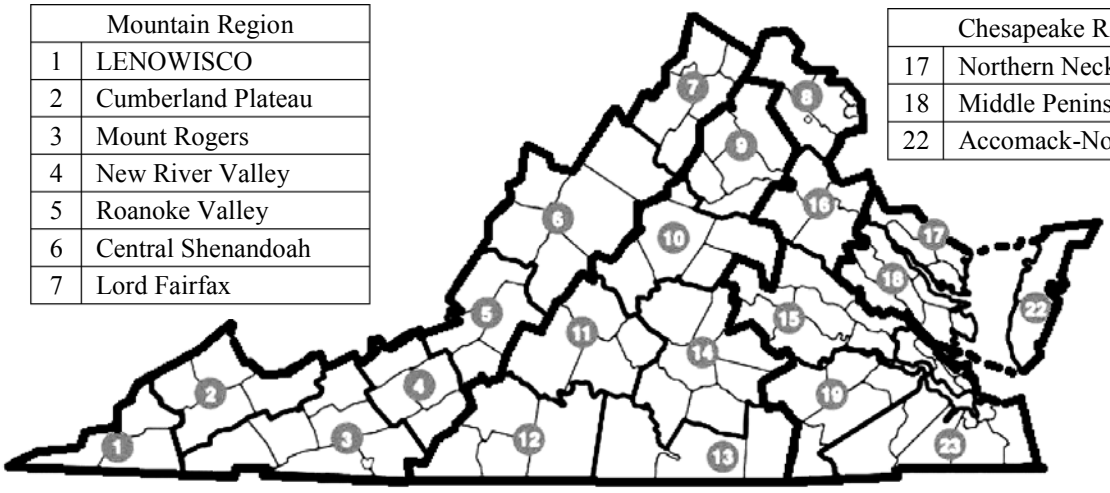
When surveying the general population, the demographic composition of the actual survey respondents rarely matches the composition of the entire population under study. Random sampling error, systematic differences in rates of refusal between different groups, and differences among households regarding the availability of someone being in the home to do the survey often result in datasets that somewhat over-represent females, over-represent homeowners, and under-represent minorities. Also, the 2011 VODS sample was selected disproportionately from different geographies within Virginia. Accordingly, statistical weighting of the survey results was designed to accomplish two objectives: (1) to proportionally represent the geographic areas from which the original sample was drawn and (2) to properly represent certain demographic characteristics of the population.

Unless otherwise noted, the data presented in this report are weighted data. Appendix G contains details about the methods and weighting procedures.

**Figure II-1: Map of regions used in the study**

| Mountain Region | |
|---|---|
| 1 | LENOWISCO |
| 2 | Cumberland Plateau |
| 3 | Mount Rogers |
| 4 | New River Valley |
| 5 | Roanoke Valley |
| 6 | Central Shenandoah |
| 7 | Lord Fairfax |

| Chesapeake Region | |
|---|---|
| 17 | Northern Neck |
| 18 | Middle Peninsula |
| 22 | Accomack-Northampton |



| Piedmont Region | |
|---|---|
| 9 | Rappahannock-Rapidan |
| 10 | Thomas Jefferson |
| 11 | Region 2000 |
| 12 | West Piedmont |
| 13 | Southside |
| 14 | Commonwealth Council |

| Urban Corridor | |
|---|---|
| 8 | Northern Virginia |
| 15 | Richmond |
| 16 | George Washington |
| 19 | Crater |
| 23 | Hampton Roads |

## *Survey Protocol*

The initial proposal called for a full mail protocol that included an advance letter, a survey packet about one week later, a thank you/reminder postcard one week after that, and a second packet about two to three weeks after that sent to all non-respondents.

Current research shows that a web-based option can reach younger populations as well as other demographics better than a paper-only survey. Therefore, CSR proposed an experimental design with four different treatment groups. Information from this experiment may inform future iterations of the VODS and may lead to lower cost alternatives. This proposal left nearly half of the sample in a paper-only mode to provide direct comparison to previous surveys without concern for survey mode effects.

1) Treatment Group 1 – Mail-Only Protocol. Advance letter, First survey packet, reminder postcard, and second survey packet to nonresponders. 6,075 households.
2) Treatment Group 2 – Mail with Web Option later. Advance letter, first survey packet, reminder postcard, and second survey packet with web option to nonresponders. 2,603 households.
3) Treatment Group 3 – Web with Mail Option later. Advance letter with link to the web, reminder postcard, and mailed survey packet to nonresponders. 2,601 households.
4) Treatment Group 4 – Mail and Web Equal Choice option. Advance letter with link to the web, first survey packet with link to the web, reminder postcard, and second survey packet to nonresponders. 2,601 households.

See Appendix G for more detail about the survey methods and the mode experiment.

## *Production*

Full production of the survey began in August 2011 with the mailing of an advance letter to the

first two treatment groups. The following table shows the full production timeline with the actual number of pieces mailed by Treatment Group.

**Table II-I: Production timeline**

| Treatment Group | Mailing | Number | Date Mailed |
|---|---|---|---|
| Treatment group 1: Mail-Only Protocol | Advance letter | 6,075 | 8/23/2011 |
| | First packet | 6,075 | 9/2/2011 |
| | Reminder postcard | 6,075 | 9/9/2011 |
| | Second packet | 4,830 | 9/28/2011 |
| | | | |
| Treatment group 2: Mail with Web Option later | Advance letter | 2,603 | 8/23/2011 |
| | First packet | 2,603 | 9/2/2011 |
| | Reminder postcard | 2,603 | 9/9/2011 |
| | Second packet | 2,048 | 9/28/2011 |
| | | | |
| Treatment group 3: Web with Mail Option later | Advance letter | 2,601 | 9/15/2011 |
| | Reminder postcard | 2,601 | 9/23/2011 |
| | First packet | 2,299 | 10/14/2011 |
| | | | |
| Treatment group 4: Mail and Web Equal Choice option | Advance letter | 2,601 | 9/15/2011 |
| | First packet | 2,601 | 9/23/2011 |
| | Reminder postcard | 2,601 | 9/30/2011 |
| | Second packet | 2,117 | 10/14/2011 |

## *Survey Response*

The majority of the respondents (92%) completed the survey using the paper-version. The remaining completions were conducted on the web (253 completions). Response varied across the four treatment groups as shown in Table II-II.

**Table II-II: Response by treatment groups**

| Treatment Group | Completions | % of all Responses | % of Treatment Group |
|---|---|---|---|
| Treatment group 1 | 1,562 | 49.6% | 25.7% |
| Treatment group 2 | 642 | 20.4% | 24.7% |
| Treatment group 3 | 377 | 12.0% | 14.5% |
| Treatment group 4 | 568 | 18.0% | 21.9% |
| **TOTAL** | **3,150** | **100%** | 22.7% |

## *Results of the Mode Experiment*

Substantive data contributed by those who took advantage of the web mode showed a few differences compared to these who used the paper mode, but not many. Those who responded by web were more likely to use web-based technology in connection with outdoor recreation. Web respondents were more likely to say they had visited historic sites; natural areas, preserves or refuges; jogging; and hiking/backpacking. Those who responded by mail among treatment groups 2, 3 and 4 were more likely to say they participated in walking for pleasure, organized softball, salt water fishing, hunting, and visiting gardens/arboretums. There were no significant differences on other activities. There were also no significant differences in the high levels of public support for opportunities to participate in outdoor recreation or protection of Virginia's natural and open space resources.

These differences do not appear to be extreme or strongly systematic. It should be noted that in a list of about 50 activities, about two to three differences would be expected to appear wholly by chance. Data from all four response modes were combined for analysis without weighting or adjusting for mode.

## *Recommended Data Collection Approach for 2016*

It seems clear that web-based data collection should not be used as the primary mode because of the lower response rates associated with it. These response rates are probably due in large part to the lack of good email addresses, which could be used to send email invitations containing a live link to the survey for each respondent. It is unlikely that this situation will be significantly improved in five years, although perhaps not impossible given the rapid changes in technology occurring all the time.

However, assuming that the situation in 2016 is not radically different from today, it seems best to use the web method as an "early responder" appeal then follow up with a full mail protocol. At the scale of the VODS, and estimating the per-case processing cost of a mail survey case at $10 in 2016, saving the mailing expenses for perhaps 15% of the sample that might choose to respond early by web would save about $10,000 to $15,000.

## *Margin of Error*

The margin of error due to sampling for the survey is approximately +/- 2.9 percent at the 95 percent level of confidence. This means that if the survey were to be repeated with 100 different random samples, the results of this survey would be within 2.9 percentage points of 95 out of those 100 iterations of the survey. Note that there are other sources of error in surveys besides sampling error that can be difficult or impossible to measure.

The margin of error is affected by the stratified sample design and the weighting of the dataset. The estimate of +/- 2.9 percent takes those factors into account.

The margins of error are larger for questions answered by smaller numbers of respondents, and for subgroups in the data.

# III. Survey Results

This chapter presents results of the 2011 Virginia Outdoors Survey. The chapter contains the following sections:

- Overview of Respondents
- Participation in and Access to Outdoor Recreation
- Virginia's State Parks
- Protection of Virginia's Natural Areas and Open Space Resources

The first section of this chapter discusses unweighted frequencies to provide a demographic profile of the actual respondents. The next three sections of the chapter discuss weighted frequencies (a.k.a. topline results) and, where appropriate, demographic correlates of these topline results and/or comparisons of these topline results with results from 2006.

Comparisons to the 2006 report are based on reports and presentations not authored by CSR rather than on direct analysis of 2006 data. We therefore limit comparisons to the 2006 report to a few key questions (e.g., importance of access to recreation services and various "facility use" questions).

## Subgroup Analysis

The responses were broken out and analyzed by several demographic categories. In discussing the results, we report those instances in which relevant differences or patterns were observed among demographic subgroups, for example, between women and men, or among residents of different regions of the state. The demographic variables listed below were those principally used in our subgroup analysis. In some cases, categories from the original questionnaire were combined to facilitate comparison.

- Age. Age was divided into five categories for most analyses: 18-24, 25-39, 40-64, and 65 or older.
- Hispanic identity. Two separate questions in the interview ask about race and ethnicity. Respondents are first asked if they consider themselves to be "of Hispanic origin." They are then asked to identify what category of race "best describes you," using a list that does not include Hispanic/Latino as a race. This follows the definition in the U.S. Census, which considers Hispanic to be an ethnic category; Hispanics can be of any race. The breakdown by Hispanic/Latino ethnicity uses responses to the Hispanic/Latino question.
- Region. Respondents were assigned to one of four geographic regions of the state used for past iterations of this study. See Figure G-1 for a map and table of the planning districts that make up these regions.
- Homeownership status. We also compared homeowners with renters.
- Gender. Respondents were asked their gender.
- Race. Respondents were asked what race they considered themselves to be. For the race variable used in the demographic breakouts, responses to the race question were changed to be "Hispanic/Latino" for those who said they were Hispanic or Latino in the question about Hispanic identity. The remaining responses to the race question were then interpreted as indicating non-Hispanic Whites, non-Hispanic Blacks, etc.
- Household income. Four categories of annual household incomes were compared: Less than $50,000; $50,000 - $99,999; $100,000 - $149,999; and more than $150,000.

See Table G-2 in Appendix G for a comparison of unweighted and weighted survey data to statewide estimates for several demographic variables.

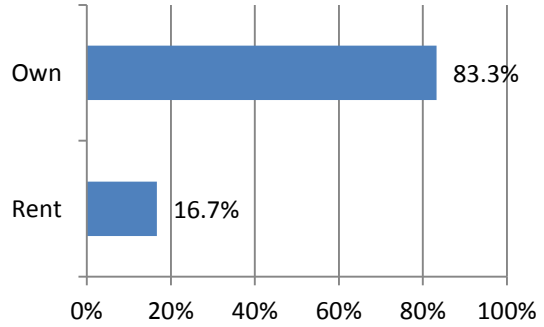
## Overview of Respondents

### *Homeownership*

As indicated in Figure III-1, approximately five out of six (83.3%) of respondents to the survey are homeowners, while just over one in six (16.7%) are renters. The unweighted percentage of homeowners among the survey respondents is greater than the statewide estimate (67.2%) obtained from the American Community Survey (ACS). The disparity is probably due in some part to the tendency for homeowners to respond to

surveys in greater proportion than renters, and to overrepresenting rural areas (where fewer rental units are available) in the sampling plan. After applying the survey weighting, the percentage of homeowners in the 2011 VODS is 74 percent, much closer to the statewide estimate obtained from the ACS. See Table G-2 in Appendix G for more detail.

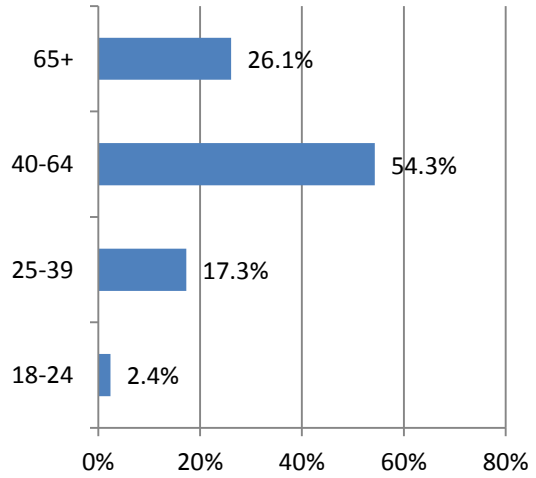
**Figure III-1: Home Ownership (unweighted)**




## *Age*

As seen in Figure III-2, approximately one quarter (26.1%) of respondents to the survey are over 65, over half (54.3%) are between 40 and 64, 17.3 percent are between 25 and 39, and 2.4 percent are between 18 and 24 years old. This overrepresents respondents under age 40, but survey weighting bring these percentages closely in line with statewide estimates. See Table G-2 in Appendix G for more detail.

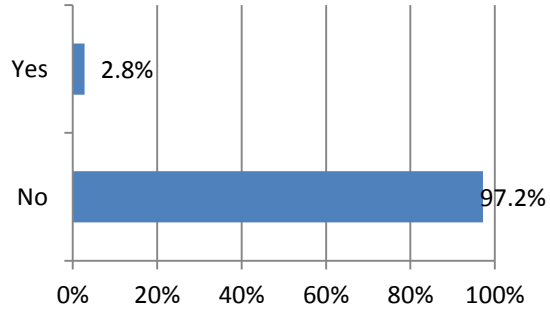
**Figure III-2: Age (unweighted)**




## *Hispanic Origin*

The vast majority of respondents were not Hispanic in origin (97.2%), while 2.8 percent of respondents (n=81) identified as Hispanic (see Figure III-3 below), while the statewide estimate is 6.9 percent. Hispanic respondents are usually underrepresented in surveys, and the sampling plan oversampled areas of the state where Hispanics do not tend to live. After weighting the survey, Hispanic respondents are 6.2 percent of the survey cases. See Table G-2 in Appendix G for more detail.

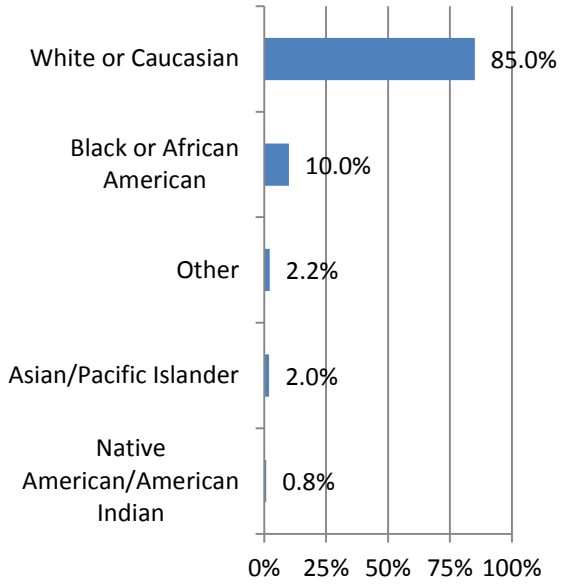
**Figure III-3: Hispanic Origin (unweighted)**




## *Race*

Race was asked separately from Hispanic/Latino ethnicity. Over four-fifths (85.0%) of the respondents identified themselves as White or Caucasian. Ten percent (10.0%) identified as Black or African American. Five percent identified themselves as any other racial category, whether Asian/Pacific Islander (2.0%), Native American/American Indian (0.8%), or "Other" (2.2%). See Figure III-4 on the following page. These percentages underrepresent minorities. After weighting the survey data, the percentages are much more in line with statewide estimates. See Table G-2 in Appendix G for more detail.

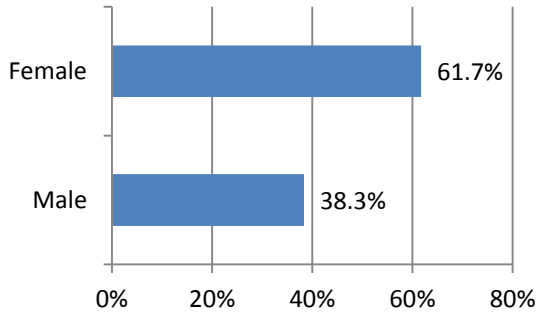
**Figure III-4: Race (unweighted)**




## *Gender*

Almost two-thirds of respondents (61.7%) were female; the remaining respondents (38.3%) were male. See Figure III-5. This overrepresents females, as is usually the case in survey research. After weighting the survey data, the percentages of male and female respondents are closely in line with statewide estimates. See Table G-2 in Appendix G for more detail.

**Figure III-5: Gender (unweighted)**



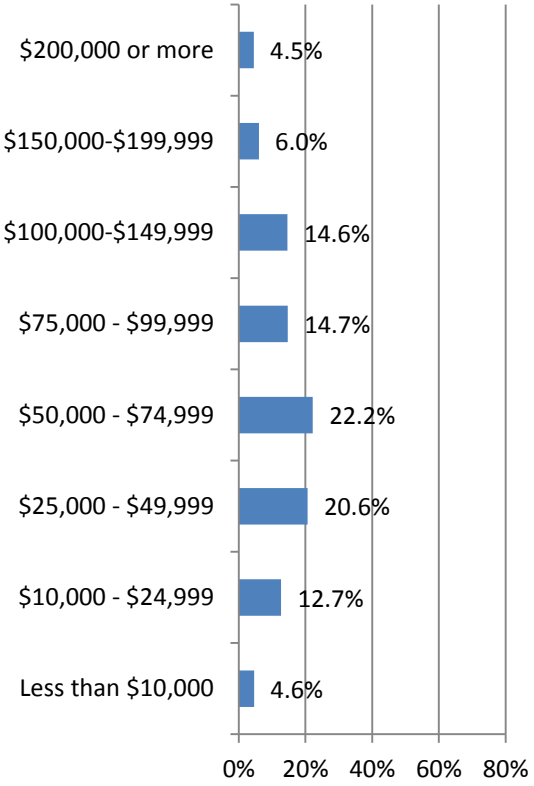

## *Income*

As shown in Figure III-6, the most respondents reported incomes between $50,000 and $74,999 (22.2%). Just over one in twenty respondents reported income of $150,000-$199,999 (6.0%), while 4.5 percent reported income more than $200,000 and 4.6 percent reported making less than $10,000.

The unweighted income data in the survey were closely in line with statewide estimates. Oversampling in Southside and southwest Virginia probably offset the usual bias towards the inclusion of higher-income households in general population surveys. After weighting the survey data, the income distribution was even more closely in line with statewide estimates. See Table G-2 in Appendix G for more detail.

Poverty level depends on the interplay of family size and household income. For a person living alone, federal poverty level in 2011 is $10,890 and for a family of four it is $22,350. In 2010, 11.1 percent of Virginia's people lived in poverty[6].

**Figure III-6: Income (unweighted)**




For additional information on the demographic distribution of respondents, please see Appendix C and Appendix G.

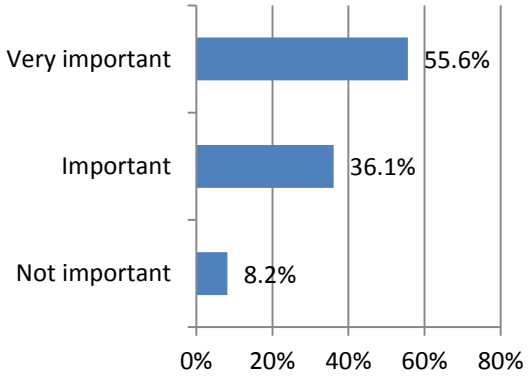
[6] For poverty definitions see http://www.vdh.state.va.us/epidemiology/DiseasePrevention/HCS/documents/2011/RW_ADAP_FPL_FY2011.pdf and for poverty statistics in Virginia see http://vaperforms.virginia.gov/indicators/economy/poverty.php.

## Access to Outdoor Recreation

### *Importance of Access*

As indicated in Figure III-7, well over half of respondents (55.6 percent) considered it "very important" to have access to outdoor recreation opportunities. Fewer than one in ten (8.2 percent) considered it "not important."

**Figure III-7: Importance of Access to Outdoor Recreation Opportunities [A1]**




These figures are generally comparable to those from the 2006 Virginia Outdoors Survey (51 percent "very important"; 41 percent "important;" 8 percent "not important"), although the percentage of respondents who consider such access "very important" increased slightly in 2011.

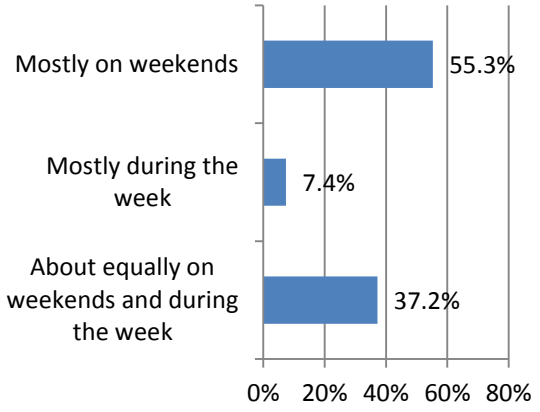
Younger respondents were generally more likely to consider access to outdoor recreation opportunities important than were older respondents. For example, 71.5 percent of respondents aged 18-24 considered such access "very important," as compared to 34.0 percent of those aged 65 and older. (See Table E1 of Appendix E.)

Among the four main regions of the state used for geographic analysis (see Figure II-1), there were no large differences in the percent saying access to outdoors recreation was "very important." Nor were homeownership, gender, or income strongly associated with perceived importance of access to outdoor recreation activities. (See Tables F1, F4, and F10 of Appendix F.)

### *Participation by Time of Week*

As indicated in Figure III-8 below, slightly over half of respondents (55.3 percent) participated in outdoor recreation activities "mostly on weekends," slightly over one third of respondents (37.2 percent) participated "about equally on weekends and during the week" and fewer than one in ten respondents (7.4 percent) participated "mostly during the week."

**Figure III-8: Participation by Time of Week [A2]**



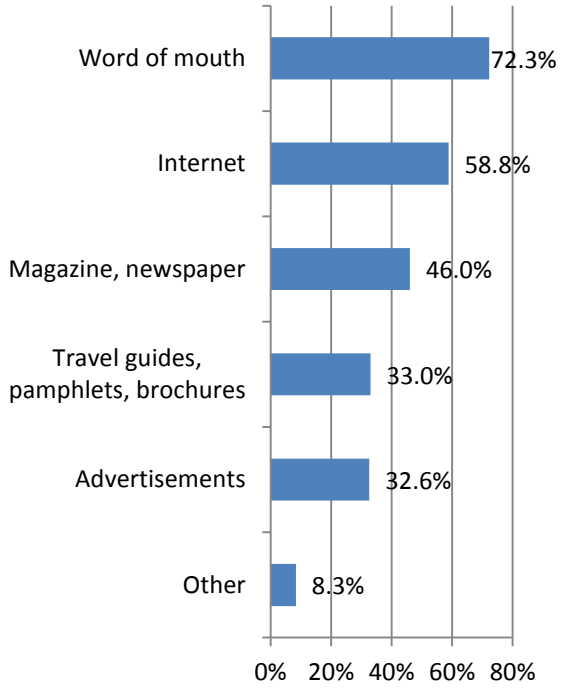

Middle-aged respondents were somewhat more likely to participate "mostly on weekends" than were both older and younger respondents. The 25 to 39 year old age group (61.9 percent) and the 40 to 64 year old age group (57.5 percent) were the most likely to register such a response. Both the 18 to 24 year old age group (50.6 percent) and the over 65 age group (42.7 percent) were less likely to do so. (See Table E1 of Appendix E.)

Respondents from the Chesapeake region (46.5 percent) were somewhat less likely to limit participation in outdoor activities to the weekend than were respondents from the other three regions. (See Table E7 of Appendix E.)

### *Sources of Information about Recreation Opportunities*

As indicated in Figure III-9, almost three quarters of respondents (72.3%) heard about recreation information and opportunities through word of mouth. Over half (58.8%) of respondents used the Internet as a source of information. Just under half (46.0%) received information from magazines or newspapers, about a third utilized travel guides, pamphlets or brochures (33.0%), and just under a third received information from advertisements (32.6%). Less than one in ten (8.3%) respondents reported an "other" source of information.

**Figure III-9: Source of outdoor recreation information and opportunities [A3]**




Younger respondents were far more likely to obtain information from the Internet than were the oldest respondents: 84 percent of respondents aged 18 to 24, for example, used the Internet to obtain information, compared to only 30 percent of those 65 and older. (See Table E2 of Appendix E.)

Only 39.9 percent of African-Americans used the Internet to find information about recreational opportunities. (See Table E5 in Appendix E.)

Region had a considerable effect on the propensity to obtain information about recreational opportunities from the Internet. Listed in descending order, the regions in which respondents were most likely to utilize the Internet are the Urban Corridor (55.7 percent) the Mountain region (52.6 percent), the Piedmont (47.4 percent) and Chesapeake (41.6 percent).

The youngest respondents were also the most likely (88.1 percent) to obtain information on recreation activities via word-of-mouth. Conversely, they were by far the least likely to obtain information from magazine or newspaper articles (22.7 percent), especially compared to respondents aged 65 and older, who were the most likely to obtain information in this way (59.9 percent). See Table E2 of Appendix E.

Homeowners (52.8 percent) were more likely to find information from magazine and newspaper articles than were renters (32.9 percent). See Table F2 of Appendix F.

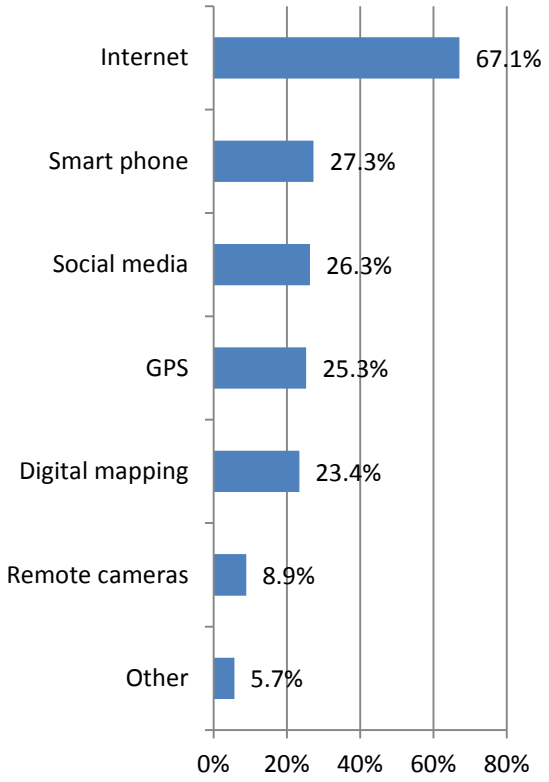
Also respondents with income over one hundred thousand dollars (75.7 percent) were much more likely to obtain information from the Internet than those who make less than fifty thousand dollars (50.0 percent). See Table F11 of Appendix F.

For additional data on the demographic correlates of sources of information about recreation opportunities, please see Tables E2, E5 and E8 of Appendix E and Tables F2, F5, F8 and F11 of Appendix F.

## *Technology and Recreation*

As seen in Figure III-10 on the following page, over two thirds of respondents (67.1%) used the Internet in connection with their outdoor recreation activities. About a quarter utilized a smart phone (27.3%) used some form of social media (26.3%), used a GPS (25.3%), or used some form of digital mapping (23.4%). Fewer than one in ten (8.9%) used a remote camera or some "other" form of technology (5.7%) in connection with their outdoor activities.

**Figure III-10: Technology and recreation [A4]**




Respondents under 25 years of age were far more likely to use social media in connection with outdoor activities (64.1 percent) than were those over 65 (13.7 percent). The association between youth and the use of other technology in connection with outdoor recreational activities is generally less clear. (See Table E3 of Appendix E.)

In terms of geography, the use of technology in connection with recreation was most prevalent in the Urban Corridor region and least prevalent in the Chesapeake region. See Tables E9 of Appendix E for details.

## *Historic Sites*

Just under two-thirds of respondents to the 2011 survey (63.5 percent) reported that members of their households had visited historic sites in the past year, as compared to 56.5 percent who had done so in 2006. Table B1 of Appendix B contains detailed information on the duration, site type and location of these visits for both years.

## *Natural Areas, Preserves and Refuges*

Just over half of respondents to the 2011 survey (50.3 percent) reported visiting a natural area, preserve or refuge in the last twelve months, as compared to 44.3 percent who had done so in 2006. Table B2 of Appendix B contains detailed information on the duration, site type and location of these visits for both years.

## *Camping*

Just under one fourth of respondents to the 2011 survey (24.1 percent) reported that members of their households had gone camping in the past year, as compared to 17.7 percent who had done so in 2006. Table B1 of Appendix B contains detailed information on the duration, site type and location of these visits for both years.

Respondents who indicated that they or someone in their household had camped in the last 12 months were asked several follow-up questions. About two-thirds (66.8%) said they camp mostly in Virginia, and more than half (58.6%) said they came mostly at publicly-owned sites. More than half of the publicly-owned sites were state-owned, as opposed to federally- or locally-owned.

Those who camped in the last 12 months most often used a tent (71.5%), while others most often used a travel trailer (13.5%), a motor home (4.4%), a pop-up tent trailer (3.5% or some other equipment (7.1%).

Most of those who camped said they prefer a drive-in campground with a parking pad (48.7%). There was less support for a drive-in campground without a parking pad (17.5%), a backpack or walk-in site without a parking pad (14.7%) or a backpack or walk-in site with a parking pad (13.6%). A small percentage (5.4%) preferred some other type of campsite.

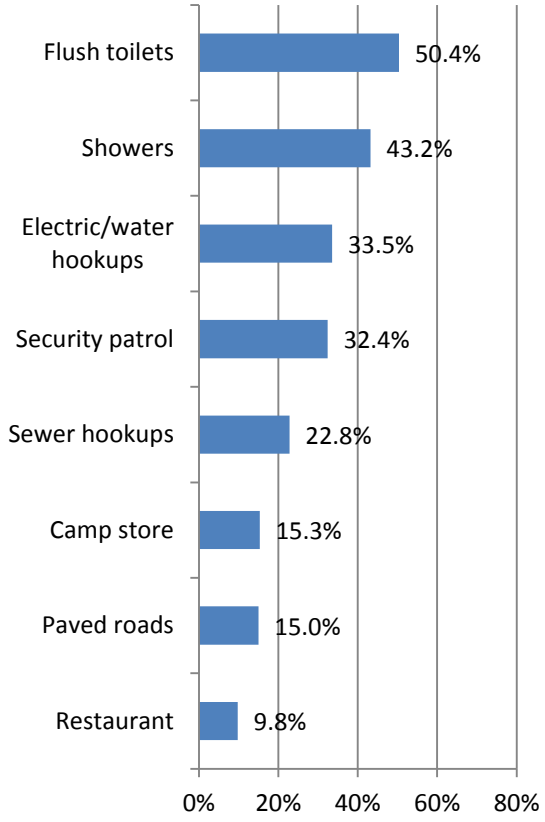
Overall, most respondents preferred a publicly-owned campground (39.6% or had no preference between publicly-owned and privately-owned campgrounds (50.7%). Only one in ten (9.7%) had a stated preference for privately-owned campgrounds/

## *Camping Amenities*

As indicated by Figure III-11 on the following page, just over half (50.4%) of respondents reported flush toilets as "very important"

amenities for drive-in campgrounds. Almost half (43.2%) noted the importance of showers. Approximately one-third of respondents considered electric/water hookups (33.5%) and security patrol (32.4%) important. Under one-fourth (22.8%) saw sewer hookups as important, while 15.3 percent and 15.0 percent noted the importance of camp stores and paved roads, respectively. Just under one in ten (9.8%) saw a restaurant as important. See Appendix C.

**Figure III-11: Importance of camping amenities [A8 – Percentage rating amenity as "very important"]**

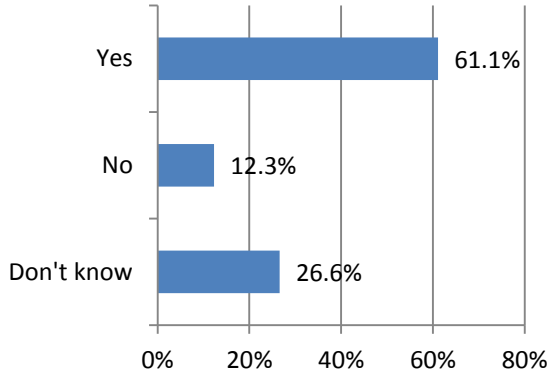



The youngest respondents – those aged 18 to 24 – considered many of these amenities to be less important than did older respondents. (See Table E25 of Appendix E for details.)

## *Developing Public Campgrounds*

As indicated in Figure III-12, almost two thirds of respondents (61.1%) were in favor of developing public campgrounds in Virginia's State Parks. Of the remainder, 12.3 percent were not in favor and 26.6 percent didn't know or had no opinion.

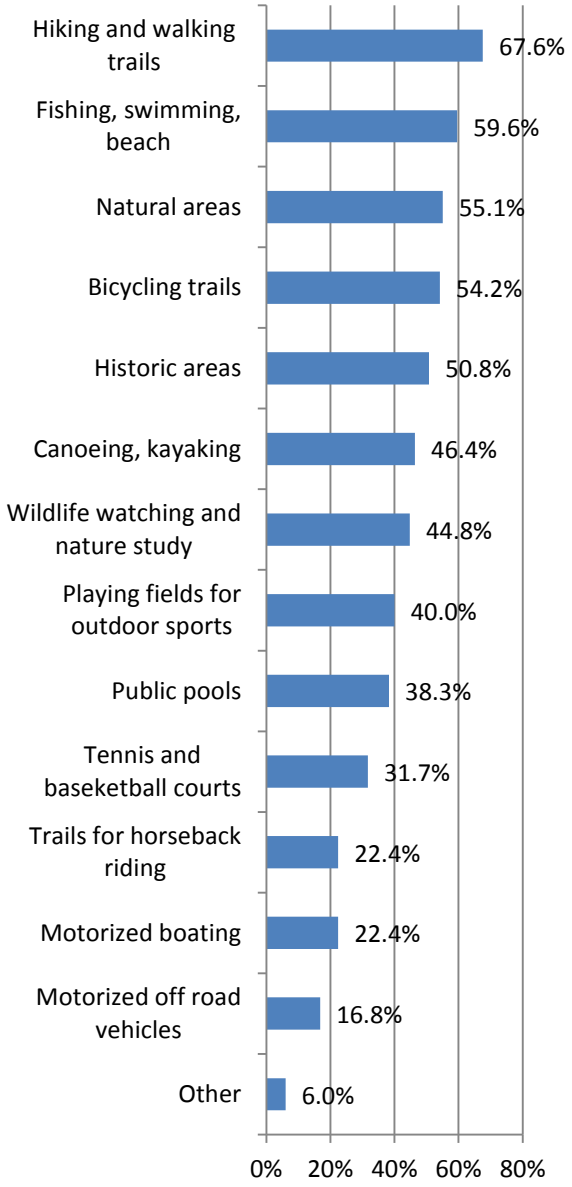
**Figure III-12: Developing public campgrounds in Virginia's state parks [A9]**




## *Most Needed Recreation Opportunities*

When asked what they thought were the most needed recreation opportunities in Virginia, over two-thirds (67.6%) of respondents indicated hiking and walking trails. Also perceived as needed by over half the respondents were access to fishing, swimming and the beach (59.6%), natural areas (55.1%), bicycling trails (54.2%), and historic areas (50.8%). See Figure III-13 on the next page.

**Figure III-13: Most needed outdoor recreation opportunities [A10]**



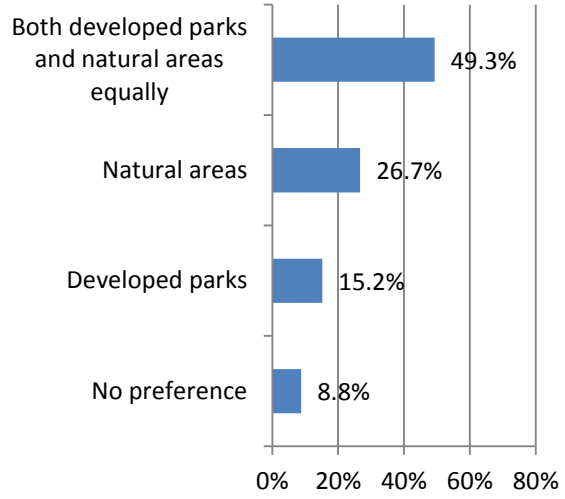

The youngest respondents (18 to 24) tended to express greater perceived needs in a variety of areas than did older respondents. However, these youngest respondents also registered noticeably less interest than others in the development of power boating opportunities. (See Table E10 of Appendix E.)

Although region did not play a major role in perceptions of most needed opportunities, respondents from the Mountain region were particularly likely to indicate needs for "public access to state waters for fishing, swimming, beach use" and "trails for hiking." Respondents from the Chesapeake region were more likely to see a need for "public access to state waters for motorized boating." (See Table E14 of Appendix E for details.)

## *Developed Sites vs. Natural Areas*

As shown in Figure III-14, when asked whether they preferred developed parks with recreational facilities or natural areas with more limited facilities, almost half of respondents (49.3%) reported that they preferred both equally. Slightly over one quarter (26.7%) of respondents preferred natural areas, while only 15.2 percent expressed a preference for developed parks.

**Figure III-14: Developed parks vs. natural areas [A11]**




Compared to older respondents, the youngest respondents reported a greater preference for "natural areas" over developed parks with ball fields and campgrounds: 44.0 percent of those aged 18-24 reported this preference compared to no more than 26.3 percent in any other age category. (See Table E11 of Appendix E.)

## *Participation in Activities*

Table III-I below lists the percentage of households participating in all 52 activities asked about in the survey.[7] "Walking for pleasure" (82.2 percent of households participating) was the

[7] We initially follow the 2006 convention of examining all activities together. We then briefly discuss activities by type (e.g., organized sports, water, etc.).

activity with the greatest participation, followed by "visiting historic sites" (63.5%), "visiting parks (50.6%) and "visiting natural areas" (50.3%). Note that the 2011 survey questionnaire did not ask about "driving for pleasure," which was named by 55 percent in 2006.

The list of activities was organized into several subsets, each with a theme – outdoor activities, organized sports activities, water-related activities, wheeled activities, miscellaneous activities and winter activities. See Appendix A for the survey questionnaire.

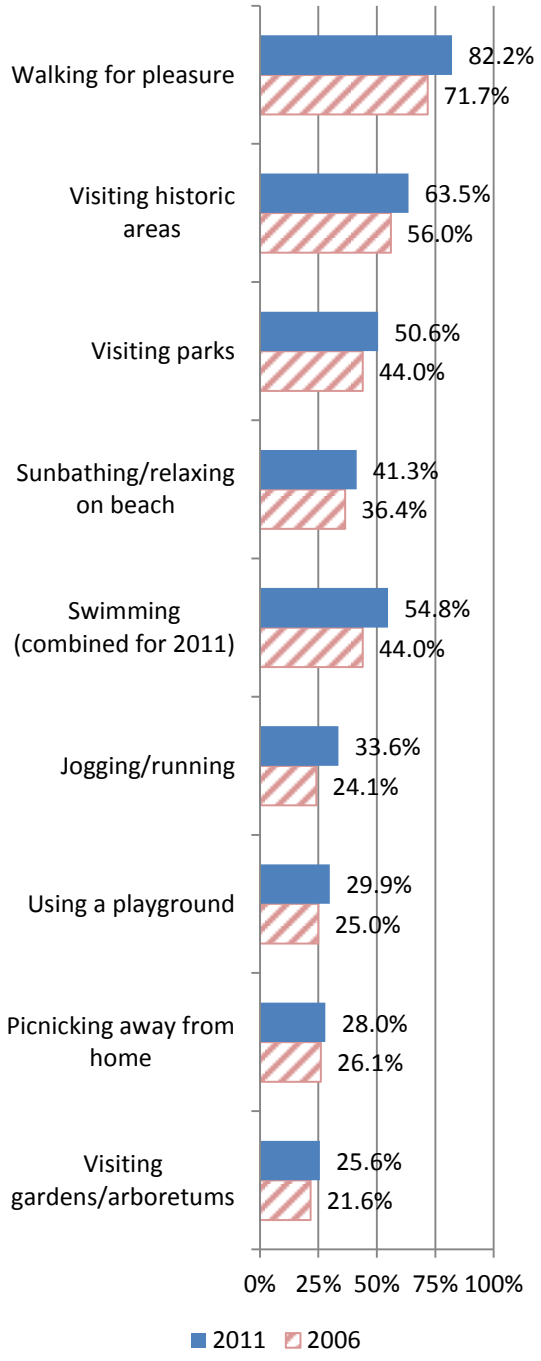
**Table III-I: Percentage of Households Participating in Activities [2011 -- All Varieties]**

| Activities | Percent |
|---|---|
| Walking for pleasure | 82.2% |
| Visiting historic sites | 63.5% |
| Visiting parks (local, state, natl.) | 50.6% |
| Visiting natural area/preserve/refuge | 50.3% |
| Swimming/pool | 43.1% |
| Sunbathing/relaxing on a beach | 41.3% |
| Swimming/beach | 38.3% |
| Jogging/running | 33.6% |
| Using a playground | 29.9% |
| Picnicking away from home | 28.0% |
| Visiting gardens/arboretums | 25.6% |
| Hiking/backpacking | 24.8% |
| Fresh water fishing | 24.4% |
| Camping | 24.1% |
| Visiting natural preserves | 19.4% |
| Golf | 16.4% |
| Canoeing/kayaking/rowing | 15.7% |
| Salt water fishing | 14.0% |
| Off-road/multi-use bicycling | 13.5% |
| Fitness Trail (not jogging) | 12.7% |
| Basketball | 12.6% |
| Hunting | 12.6% |
| Soccer | 11.8% |
| Downhill skiing/snow boarding | 10.9% |
| Tennis | 10.3% |
| Power boating | 10.1% |
| Single track bicycling | 10.0% |
| Snow sledding/tubing | 9.1% |
| Nature study/Nature programs | 8.8% |
| Softball | 8.0% |
| Tubing on water | 8.0% |
| Football | 6.9% |
| Other outdoor activities | 6.6% |
| Driving 4-wheel off road | 6.2% |
| Horseback riding | 6.0% |
| Other organized sports activities | 5.9% |
| Jet ski/personal watercraft | 5.9% |
| Volleyball | 5.7% |
| Baseball | 5.4% |
| Bird watching away from home | 5.3% |
| Driving motorcycle, etc. off road | 4.9% |
| Water skiing or towed on water | 4.4% |
| Skateboarding | 4.3% |
| Sailing/sail boarding | 3.9% |
| Ice skating (outdoor) | 3.7% |
| Rafting | 3.6% |
| In-line skating | 2.6% |
| Driving motorcycle off road | 2.4% |
| Geocaching or letterboxing | 2.3% |
| Other water-related activities | 1.8% |
| Cross country, snowshoeing | 1.6% |
| Other wheeled activities | 1.0% |
| Other miscellaneous activities | 0.6% |
| Other winter activities | 0.5% |

As indicated in Figure III-15, eight of the top ten activities asked about in 2011 were also asked about in 2006. (The 2011 survey asked separate questions about "pool" and "beach" swimming, while the 2006 survey asked only about swimming in general.)

Participation in seven of these eight most popular activities increased between 2006 and 2011. For example, participation in "walking for pleasure" increased from 71.7 percent in 2006 to 82.2 percent in 2011, and participation in "jogging/running" increased from 24.1 percent in 2006 to 33.6 percent. Among these top activities, the only activity for which participation decreased was "visiting historic areas" (from 56.0 percent in 2006 to 63.5 percent in 2011).

**Figure III-15: Participation in the Top Ten Activities by Year**




## *Participation in Outdoor Activities*

Three of the ten activities most frequently participated in by respondents fall into the general category of "outdoor activities" (i.e., "walking for pleasure," "jogging/running" and "using a playground"). Detailed information on the frequency, duration and proximity of these activities is found in Table B4 of Appendix B. Demographic comparisons of participation rates are found at the end of Appendices E and F.

## *Participation in Organized Sports*

None of the ten activities most frequently participated in by respondents fall into the category of "organized sports." The three organized sports most frequently participated in by respondents are golf (16.4 percent), basketball (12.6 percent) and soccer (11.8 percent). Detailed information on the frequency, duration and proximity of these activities is found in Table B5 of Appendix B. Demographic comparisons of participation rates are found at the end of Appendices E and F.

## *Participation in Water-Related Activities*

Three of the ten activities most frequently participated in by respondents fall into the category of "water-related activities." These three activities are "swimming/pool," "sunbathing/ relaxing on a beach" and "swimming/beach." Detailed information on the frequency, duration and proximity of these activities is found in Table B6 of Appendix B. Demographic comparisons of participation rates are found at the end of Appendices E and F.

## *Participation in Wheeled Activities*

None of the ten activities most frequently participated in by respondents fall into the category of "wheeled activities." The three wheeled activities most frequently participated in by respondents are "off road/multi use bicycling" (13.5 percent), "single track bicycling" (10.0 percent) and "driving 4-wheel off road" (6.2 percent). Detailed information on the frequency, duration and proximity of these activities is found in Table B7 of Appendix B. Demographic comparisons of participation rates are found at the end of Appendices E and F.

## *Participation in Miscellaneous Activities*

Four of the ten activities most frequently participated in by respondents (i.e., "visiting parks," "visiting historic areas," "picnicking away from home" and "visiting gardens/arboretums") fall into the category of miscellaneous activities. Detailed information on the frequency, duration

and proximity of these activities is found in Table B8 of Appendix B. Demographic comparisons of participation rates are found at the end of Appendices E and F.

### *Participation in Winter Activities*

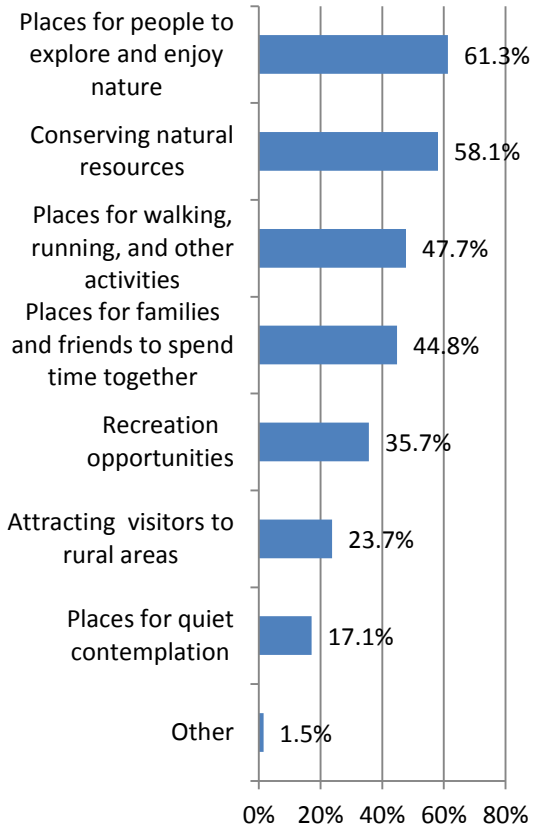
None of the ten activities most frequently participated in by respondents fall into the category of "winter activities." The three winter activities most frequently participated in by respondents are "downhill skiing/snowboarding" (10.9 percent), "snow sledding/tubing" (9.1 percent) and "ice skating" (3.7 percent). Detailed information on the frequency, duration and proximity of these activities is found in Table B9 of Appendix B. Demographic comparisons of participation rates are found at the end of Appendices E and F.

## Virginia's State Parks

### *Top Reasons to Have State Parks*

As indicated in Figure III-16, nearly two-thirds of respondents (61.3 percent) see state parks as places "to explore and enjoy nature." A similar number (58.1 percent) look to the parks for conservation of natural resources. Roughly half of those surveyed use parks for either physical exercise (47.7 percent) or socializing (44.8 percent). A third of respondents (35.7 percent) enjoy various recreational activities, while a quarter of respondents (23.7 percent) see the parks as a way for visitors to enjoy rural areas. A smaller number (17.1 percent) view "quiet contemplation" as a reason to have state parks.

**Figure III-16: Reasons to Have State Parks**




Younger respondents (those aged 18 to 24) generally selected the same top three reasons to have state parks as older respondents. Only "places for people to spend time together" was associated noticeably with age, selected by 35.1 percent of those aged 18-24 and by 46.4, 46.8, and 48.8 percent of the successively older age groups. (See Table E16 of Appendix E.)

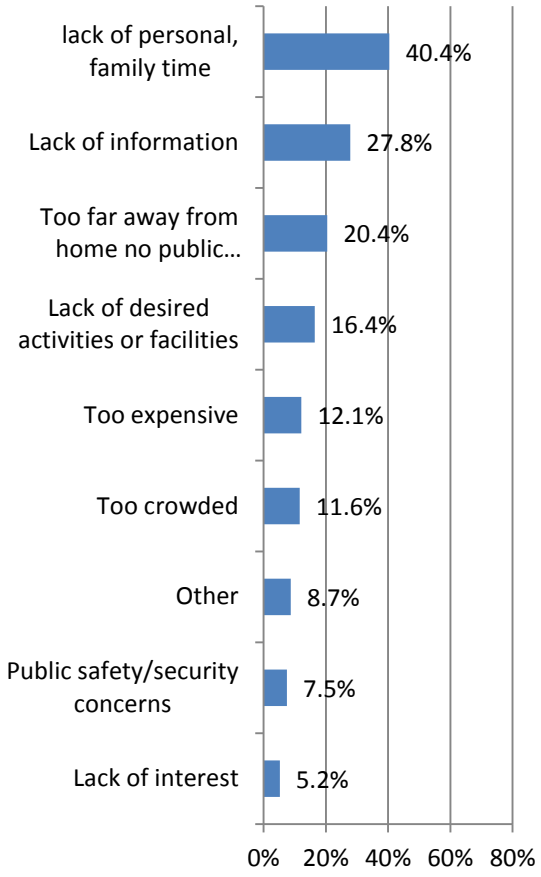
Respondents from the Urban Corridor were somewhat more likely to value "walking, running and other healthy activities" than were respondents from other regions, and somewhat less likely to value "places to spend time together" and "helping rural economies." (See Table E20 of Appendix E.)

### *Reasons for Lack of Use*

Figure III-17 reveals that the most common reason people do not use state parks is lack of time (40.4 percent). About one quarter of respondents (27.8 percent) lack information about the parks and about one fifth of respondents (20.4 percent) find them inconvenient. Only a very small proportion of respondents fail to use the parks due to security

concerns (7.5 percent) or lack of interest (5.2 percent). Many of the "other" responses to this item had to do with physical limitations due to health conditions or age.

**Figure III-17: Reasons for Lack of Use**



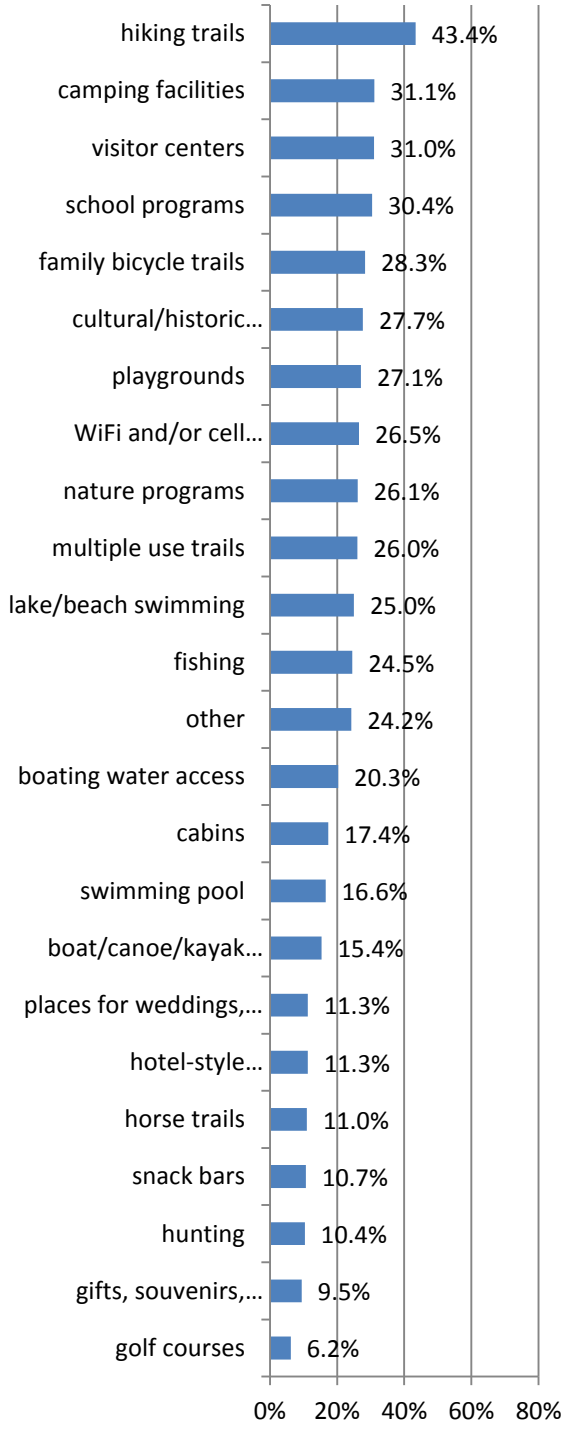

The youngest respondents were somewhat more likely than others to select "lack of information" as a reason for not using state parks, while the oldest voters (over 65) were the only age group that did not select "not enough time to use them" as the most frequently chosen reason. (See Table E16 of Appendix E.)

Residents in the Chesapeake region were the least likely to indicate "lack of information" and "not enough time" as reasons for not visiting state parks. Those in the Urban Corridor were more likely to say that "lack of information" kept them from using parks (See Table E20 of Appendix E.)

## *Importance of Specific Amenities in Virginia State Parks*

Figure III-18 on the following page depicts attitudes about the importance of a wide range of specific amenities within state parks. The three amenities viewed as most important were hiking trails (43.4 percent), camping facilities (31.1 percent), and visitor centers (31.0 percent). The three least frequently cited were hunting (10.4 percent), gifts and souvenirs (9.5 percent), and golf courses (6.2 percent).

**Figure III-18: Preferred Amenities in Virginia State Parks**



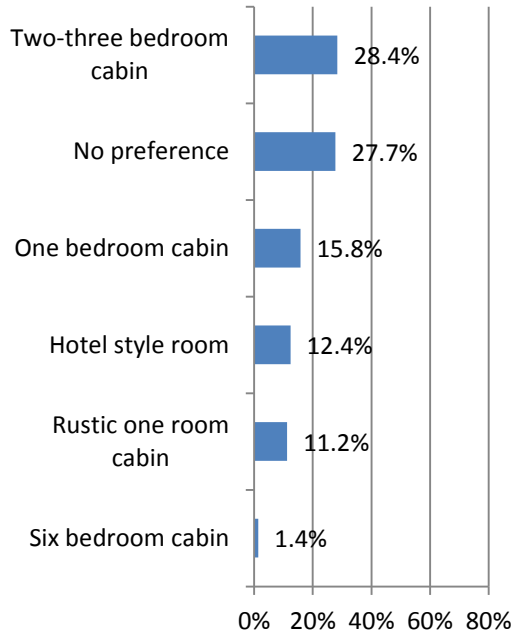

Compared to older respondents, a greater percentage of younger respondents (those aged 18 to 24) generally consider hiking trails, multiple use trails, and school programs to be "very important." (See Table E28 of Appendix E.)

Respondents from the Mountain region viewed "camping" and "fishing" amenities as more important than did those from the Urban Corridor. Respondents from the Urban Corridor viewed "hiking trails" as more important than did respondents from other regions. (See Table E30 of Appendix E.)

## *Preferred Lodging Style*

As indicated in Figure III-19, while two to three bedroom cabins are the most popular lodging arrangement (28.4 percent), nearly as many people (27.7 percent) have no "preferred lodging style." Comparable appeal is shared by one-bedroom cabins (15.8 percent), hotel style rooms (12.4 percent), and rustic cabins (11.2 percent). Six-bedroom cabins were the least preferred option (1.4 percent).

**Figure III-19: Preferred Lodging Style**

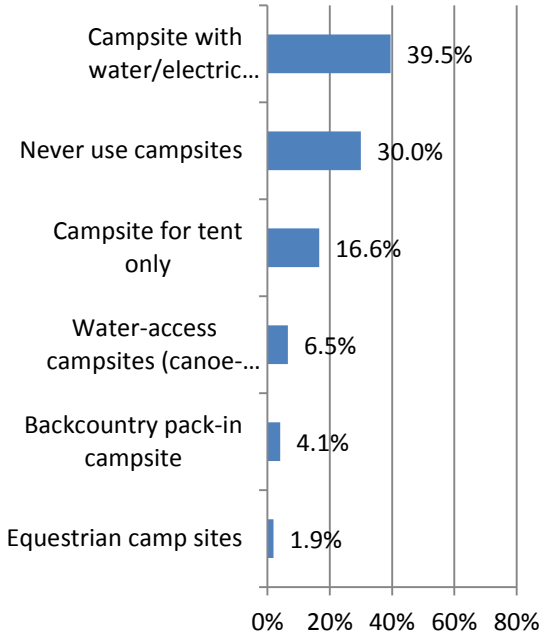



## *Preferred Campsite Types in State Parks*

All respondents were asked "If you were to camp in a state park, what type of campsite would you prefer?" Figure III-20 depicts the popularity of campsite types, with those having water and electricity being the most preferred (39.5 percent). Fewer than half as many respondents (16.6 percent) prefer tent-only campsites. Still fewer respondents preferred campsites with access to boating or swimming (6.5 percent), back-packing

campsites (4.1 percent), and equestrian campsites (1.9 percent). Three in ten respondents (30.0 percent) do not use campsites at all.

**Figure III-20: Preferred Campsite Type**

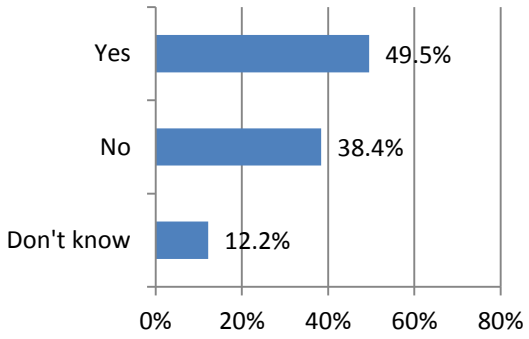



The oldest respondents were unlikely to indicate a preference for "tents only" campsites. (See Table E17 of Appendix E.)

## *Swimming without Lifeguards*

Respondents were asked "Would you feel comfortable at a state park lakefront or river swimming area if lifeguards were NOT on duty?" Figure III-21 indicates respondents' relative levels of comfort in this situation. Approximately half of respondents (49.5%) felt secure doing so; slightly over a third of respondents (38.4%) did not. The remaining respondents (12.2%) were unsure whether they would feel comfortable in such a situation.

**Figure III-21: Comfortable swimming without lifeguards?**



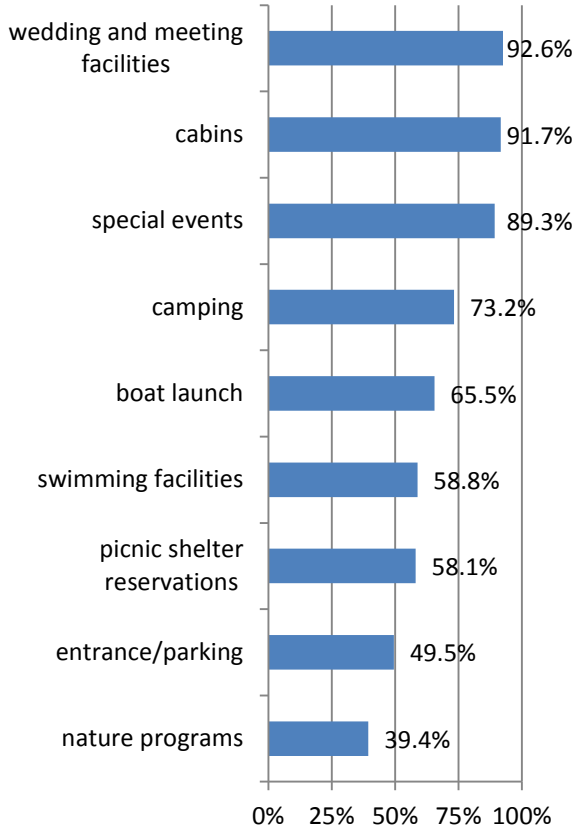

Younger respondents (those under 40 years of age) indicated a greater willingness to swim without lifeguards at a state park swimming area than did older respondents. (See Table E17 of Appendix E.)

Respondents from the Chesapeake region were the most willing to swim without lifeguards (61.9%); respondents from the Urban Corridor were the least willing (46.4%). (See Table E21 of Appendix E.).

### *Acceptability of fees*

As indicated in Figure III-22, respondents were most willing to pay fees for wedding and meeting facilities (92.6 percent), followed by cabin fees (91.7 percent), special events (89.3 percent), and camping (73.2 percent). Slightly less than half of respondents (49.5 percent) approved of entrance/parking fees, while the least popular fee (39.4 percent) was for nature programs.

**Figure III-22: Acceptability of Fees**



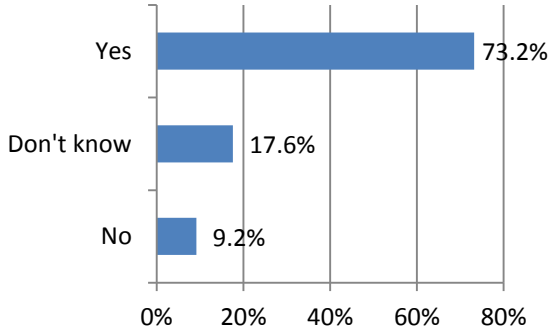

These results did not vary greatly among demographic subgroups. (See Tables E31, E32 and E33 of Appendix E.)

## Protection of Virginia's Natural Areas and Open Space Resources

### *Spending Public Funds to Preserve Natural Areas and Open Spaces*

Respondents to the survey were asked "Should the state spend public funds to acquire land to prevent the loss of natural areas and open spaces?" There is strong public support for such spending, as indicated in Figure III-23. Nearly three-fourths (73.2 percent) of those surveyed support public spending to prevent the loss of natural areas and open spaces. Among the remaining respondents, nearly twice as many people had no opinion on such spending (17.6 percent) than actually opposed it (9.2 percent).

**Figure III-23: Spending to preserve natural areas**

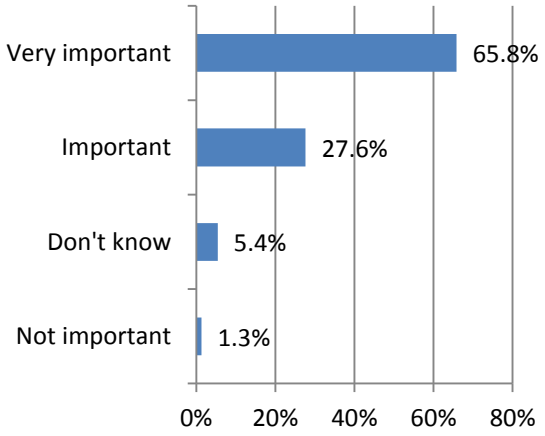



There was no clear linear relationship between age and attitudes about spending, nor was there a strong association between these attitudes and region (see Tables E22 and E24 of Appendix E).

### *Importance of Protecting Natural and Open Space Resources*

As indicated in Figure III-24 on the following page, close to two-thirds (65.8 percent) of respondents rate the protection of natural areas as "very important," and slightly over a quarter or respondents (27.6 percent) rate it as "important." Very few respondents (1.3 percent) consider natural area protection to be "Not important."

**Figure III-24: Importance of protecting natural areas**

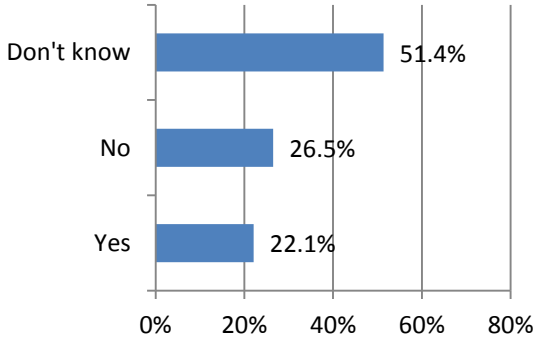



There was no clear linear relationship between age and the perceived importance of protecting natural areas, nor was there a strong association between these perceptions and region (see Tables E22 and E24 of Appendix E).

## *Are Natural and Open Space Resources Adequately Protected?*

As indicated in Figure III-25, just over half of those surveyed (51.4 percent) are unsure whether natural and open spaces are adequately protected. Slightly over a quarter of respondents (26.5 percent) feel that natural resources are not adequately protected, slightly under a quarter of respondents (22.1 percent) feel that they are.

**Figure III-25: Are Resources Adequately Protected?**

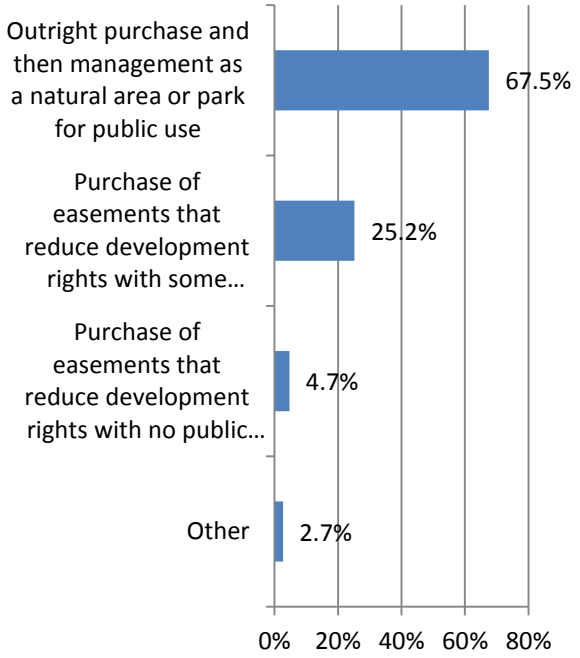



There was no clear linear relationship between age and the perception that natural areas are adequately protected, nor was there a strong association between these perceptions and region (see Tables E22 and E24 of Appendix E).

## *Best Protection Strategy*

As indicated in Figure III-26, more than two-thirds of respondents (67.5 percent) consider the best method of protecting natural resources to be "outright purchase and then management as a natural area or park for public use." About a quarter of respondents (25.2 percent) prefer "purchase of easements that reduce development rights with some public use allowed". Very few respondents (4.7 percent) prefer purchases of easement "with no public use allowed."

**Figure III-26: Methods of Protecting Natural Areas**

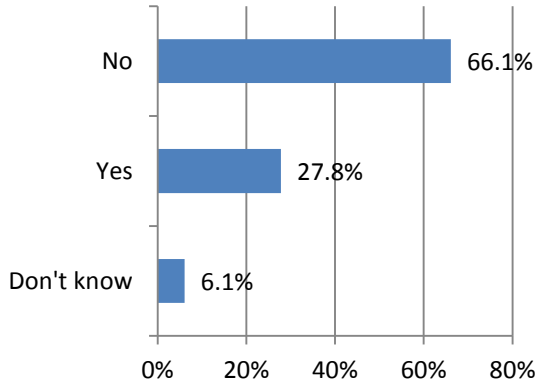



There were no strong subgroup differences regarding attitudes about the best strategy for protecting natural resources. (See Tables E22, E23 and E24 of Appendix E.)

## *Familiarity with Natural Area Preserve System*

Respondents were given a definition of Virginia's Natural Area Preserve System and asked three questions about it. As indicated in Figure III-27 approximately two-thirds of respondents (66.1 percent) had not heard of the preserve system before this survey.

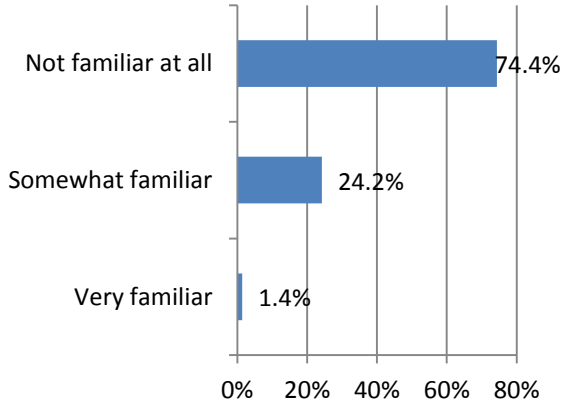
**Figure III-27: Heard of Preserve System?**




Younger respondents and respondents from the Urban Corridor were all less likely to have heard of Virginia's Natural Area Preserve System than were other respondents.

As indicated in Figure III-28, about three-quarters of respondents (74.4 percent) described themselves as "Not familiar at all" with the preserve system, about a quarter (24.2 percent) said they were "somewhat familiar," and only a very small number (1.4 percent) characterized themselves as "very familiar" with the preserve system.

**Figure III-28: Degree of Familiarity with Virginia's Natural Preserve System**

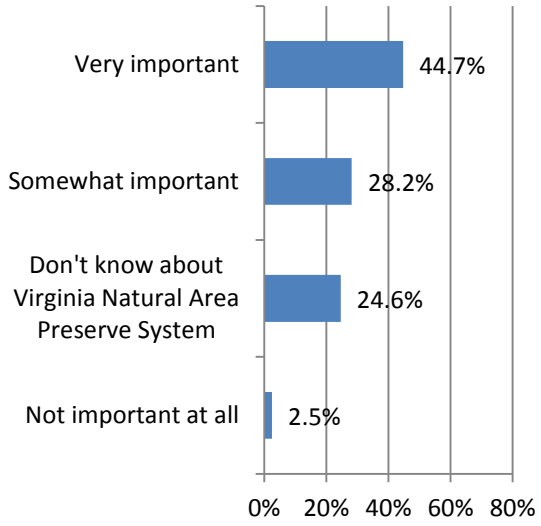



There was no strong linear relationship between age and degree of familiarity with the preserve system. Respondents from the Urban Corridor were less familiar with the preserve system than were other respondents. (See Tables E22 and E24 of Appendix E for the detailed data on awareness of and familiarity with the Preserve System.)

## *Importance of Natural Area Preserve System*

As indicated in Figure III-29, despite lack of familiarity with the system, slightly under half of respondents (44.7 percent) consider the preserve system "very important" and over a quarter (28.2 percent) rate it as "somewhat important." Very few respondents (2.5 percent) saw the system as "Not important at all."

**Figure III-29: Importance of Preserve System**




Younger respondents were more likely to consider the preserve system "very important" than were older respondents. Perceived importance of the preserve system was not strongly related to region. (See Tables E22 and E24 of Appendix E.)

## *Race, Ethnicity and Recreational Activities*

Generalizations about racial and ethnic groups are sometimes risky because racial and ethnic subgroups are not monolithic populations. There is much variety within almost any demographic subgroup. But some trends do seem to be useful to consider in a broad, general way.

Research about Hispanic Americans demonstrates many similarities to other Americans in terms of placing high value on recreational opportunities and participating in many of the same popular activities. But there are some cultural differences in how Hispanics participate in and relate to outdoors activities because Hispanic culture emphasizes extended family, community solidarity

and individual expression within those structures. In addition, Hispanics in some areas of the country may not participate in nature-focused activities at the same rates as do others[8].

African-Americans tend to place slightly less value on outdoors recreational opportunities, and tend to participate in a more limited range of activities that is not strongly focused on hiking, camping or other ways of connecting to nature[9].

In general, the results from the 2011 VODS show that Hispanics, in comparison to non-Hispanics, were especially likely to consider access to outdoor recreational opportunities as "very important." They were somewhat more willing to spend public funds to protect natural areas than were non-Hispanics. They were more likely to consider the Virginia Natural Area Preserve System "very important." They were more likely to obtain information about recreational opportunities from the Internet and to use social media, smart phones and GPS in conjunction with outdoor recreation. They were more likely to feel secure swimming without lifeguards.

However, they were less likely to have heard of the Natural Area Preserve System and they rated themselves as less familiar with the preserve system. They were more likely to say that "lack of information" was a major reason they do not use state parks more

Hispanic respondents were more likely to say that swimming amenities were most important to have in state parks. When asked what they thought were the most needed recreation opportunities in Virginia, Hispanic respondents indicated a comparatively greater interest in bicycle trails and outdoor playing courts than did non-Hispanic respondents. Hispanic respondents gave lower importance ratings for many drive-in campground amenities than did non-Hispanic respondents, although they reported participating in camping at about the same rate that non-Hispanics do.

In the 2011 VODS, African-American respondents were somewhat less likely to say that access to outdoor recreation opportunities is "very important," and they were relatively less supportive of spending public funds to protect natural areas and open spaces, although a majority still expressed this support. Like Hispanics, African-Americans were somewhat more likely compared to whites to say they had not heard of the Virginia Natural Area Preserve System. Compared to other racial and ethnic groups, African-Americans were more likely to have heard about recreation opportunities through advertisements, and were the least likely to hear about them through the Internet.

African-Americans were not frequent campers, but African-American respondents were more likely to express support for just about any campground amenity compared to other racial and ethnic groups. African-American support for almost all amenities in state parks except hiking trails exceeded support expressed by whites – particularly for school programs.

The appendices to this report provide detailed crosstabulation tables allowing comparisons of response by race and ethnicity.

## Summary

The 2011 VODS provides a useful basis to support strategic planning for Virginia's outdoors recreational needs. The results of the survey are similar to those obtained in 2006, although self-reported participation in outdoors activities is generally a bit higher in 2011.

Public support is very strong for public access to public waters, open spaces and outdoor recreational opportunities, as well as for public expenditures to make those opportunities available. Public support is also strong for the Virginia Natural Preserve System despite significant lack of knowledge about the system.

Similarly to 2006, the four activities most frequently mentioned by respondents as something they or a household member did in the last 12 months were "walking for pleasure" (82.2 percent of households participating), "visiting historic sites" (63.5%), "visiting parks (50.6%) and "visiting natural areas" (50.3%). Note that the 2011 survey questionnaire did not ask about "driving for pleasure," which was the third-most

[8] See, for example, http://www.outdoorfoundation.org/pdf/ResearchHispanic.pdf and http://www.fs.fed.us/psw/publications/documents/psw_sp012/psw_sp012.pdf.

[9] See http://www.outdoorafro.com/ for an example of a personal response to this tendency.

popular activity, named by 55 percent, in the 2006 survey.

Younger age groups, particularly those aged 18 to 24, tended to be more active and to have fewer desires for amenities in state parks. Participation in some activities was related to the region of the state in which the respondent lived. For example, hunting was more popular in the Mountain and Piedmont regions, and camping was more popular in the Mountain region. And naturally, salt water fishing and power boating were more popular in the Chesapeake region.

The methods experiment conducted in the 2011 VODS indicates that a hybrid method should be considered in 2016. This hybrid would use a web-based invitation, possibly with one or two follow-up contacts, to obtain completed surveys by Internet. Then a full postal survey protocol would be used to fill out the data collection and maximize response rates. This approach might save $10,000 to $15,000 compared to a postal-only method.

Detailed estimates of demand and capacity for the activities covered in the survey will be delivered separately from this report. Also delivered separately is a report from the Center for Economic and Policy Studies (CEPS) at the Weldon Cooper Center for Public Service at UVa concerning alternate methods of estimating demand and unmet needs for recreational resources.

Those additional products together with this report form only a portion of the information used by DCR staff in their extensive review and update of the 2012 Virginia Outdoors Plan. We are pleased to contribute to this important effort on behalf of Virginia's citizens.